Increasing Production of Wild Brown Trout

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Requests for "wild" brown trout fingerlings have increased dramatically because research has shown that post-stocking survival of wild fingerlings is more than twice that of domestic fingerlings. In recent years, requests of wild brown trout by management biologists have increased sharply. For instance, the 4,500 wild brown trout that were requested in 1997 seems insignificant compared to the 152,500 that were requested to be stocked in 2005. However, since IDNR began spawning wild brown trout in 1996, wild brown trout egg production has been highly variable since the number of females that have spawned in the hatchery has been sporadic.

Our research focuses on finding methods to increase the number of wild brown trout eggs produced at Manchester Fish Hatchery. An increase in the number of eggs taken would mean a corresponding increase in the number of fingerlings produced. These additional fish would, hopefully, keep pace with requests made by management biologists.

One possible solution to this problem would be the use of hormones to induce a higher percentage of females to spawn. However, three hormones were evaluated in 2002 and 2003, but none provided a higher percentage of spawning females at an acceptable mortality level.

Because female brown trout collected from streams are relatively small and produce a small number of eggs, a second possible solution for increasing egg production would be to spawn larger females. This could be accomplished by collecting brown trout females from streams and rearing them to a larger size in a hatchery setting. To evaluate this, a group of wild females collected and spawned in 2002 were held in an outdoor pond at Manchester Fish Hatchery and grown to a larger size by feeding them live forage and prepared feed. This group of females was spawned again in 2003, then held at the hatchery for one additional year, and spawned for a third and final time in 2004. Between spawning seasons, these "retained" broodstock grew quite well. This year class of females averaged 11.5" in 2002, 17.4" in 2003, and 21.0" in 2004. The increase in weight for this year class was equally impressive. This group of females averaged only 0.54 lbs. in 2002, increased to 2.15 lbs in 2003, and weighed 4.31 lbs. in 2004. Most importantly, egg production increased from 439 eggs/female in 2002, to 1,941 eggs/female in 2003, and finally 2,867 eggs/female in 2004.

Our research does not support the use of spawning hormones with brown trout; therefore, that aspect of the project has been terminated. However, retaining broodstock in the hatchery to be grown to a larger size is promising and will be investigated further.